NEW DRUGS

IN CHARGE OF

WILLIAM SCHLEIF, M.D.

Instructor in Pharmacy, University of Pennsylvania

DRUGS: THEIR USE AND ABUSE

A VERY convenient form to exhibit remedies is in the shape of pills, though this is necessarily limited to drugs which do not change when exposed to the air, are not volatile, and are not given in doses exceeding three grains for a vegetable and five grains for a pill composed of mineral ingredients. Pills have always been among the most popular of solid preparations, as they afford a ready means of administering substances unpleasant to the taste. In order to combine medicinal agents so that they can be shaped into pills, it becomes necessary to add some liquid or solid to form a mass from which the pills are moulded. This very addition often neutralizes all the advantages derived from their use, as the pills gradually harden and become insoluble. This applies not so much to the freshly made pill of the pharmacist, but to the machine-made product of the manufacturer, which may have rested on the druggists' shelves for a long time before it is called into use. It is often advisable to test such pills in reference to their solubility; especially is this indicated in the case of quinine. A pill should soften or fall to pieces if exposed to water for a reasonable length of time.

Capsules are employed when pills cannot be swallowed or a more bulky dose is to be given. Two varieties are found, the hard and the soft. Hard capsules are intended for solids and soft capsules for liquids. The former easily hold from five to ten grains of powdered drug, the latter are typically suited for volatile and fixed oils. Though a capsule is much larger than a pill, still it is swallowed quite as easily—at times even more readily—provided it does not exceed the size of the pill in its transverse diameter. The soft capsule is taken with less difficulty than the hard, and quite a number of patients can swallow a capsule containing seventy-five minims of cod-liver oil, though the capsule in such a case closely approximates a bird's egg in size.

Cachets—originally called *cachets de pain*—are an improvement on both pill and capsule. They consist of little, hollowed disks of wafer-sheet, so constructed that two can be fastened together by their concave surfaces to enclose a dry powder. The cachet is dipped for an instant in

water, when it softens, placed upon the tongue, and a mouthful of water will carry it down as readily as a raw oyster. Larger doses can be given in this way than by pill or capsule. The principle of the cachet can be carried out in the following manner: a small piece of wafer-sheet (the same that is sold as fish-food) is floated upon a glassful of water; as soon as it softens, it is picked up from below with a spoon. The softened wafer-sheet falls into the hollow of the spoon, the powder is placed upon it, the free edges of the sheet are folded carefully over the powder, and the whole swallowed before the latter has had a chance to dissolve.

Whenever it is possible medicinal substances should be prescribed in *solution,* and most *mineral* or *chemical* salts are given in this manner, preferably dissolved in water. This has the distinct advantage of possessing no therapeutic action of its own. But the vegetable drugs, like roots, barks, leaves, stems, fruits, flowers, and the like, must be prepared in some manner to render them suitable for administration. Their dose is usually so large that patients would object to taking them in the form of a dry powder. If the active principle is known, this is extracted and employed in a pure condition. Cinchona bark contains quinine, and two and one-half grains of quinine represent approximately the activity of one hundred grains of the dry bark. We prefer, therefore, to administer a small quinine pill instead of taxing the patient's digestive organs with a large quantity of the powdered drug in its crude state. In many cases the active principle has not been isolated and the drugs are extracted with some liquid, usually water, alcohol, or a mixture of the two. By the use of water, *infusions* and *decoctions* are obtained: infusions, if the drug be exhausted with either hot or cold water, while a decoction results if the mixture be boiled; in either case the liquid is strained. When a vegetable drug is extracted with alcohol (or alcohol diluted with water) a *tincture* is produced, and if this tincture be made of such strength that a minim represents a grain of crude drug (one hundred per cent.), it is called a *fluid extract.* All tinctures and fluid extracts contain alcohol; they therefore require dilution with water previous to administration. Alcohol is a good antiseptic, and preparations made with this liquid keep much better than those prepared with water, but the therapeutic effect of the alcohol should not be lost sight of. Many tinctures are given in doses ranging from a teaspoonful to a tablespoonful, and the quantity of alcohol they contain represents in strength at least an equal volume of whiskey or brandy. Consequently a patient may become a chronic tippler from the long-continued use of any tincture given in large doses, though it must also be said that the medicinal value of many pharmaceutical preparations depends in great measure upon the alcohol they contain.